Driveshaft and axle

General Information

Specification

	Items	Inner side	Outer side
Frank dei vaalaaft	Joint type	VTJ	ВЈ
Front driveshaft	Max. permissible angle	23.5°	46.5°
Rear driveshaft	Joint type	TJ	BJ
Rear driveshalt	Max. permissible angle	23.5°	46.5°
	Oil type	Hypoid gear oil (API GL-5, SAE 75W/90)	
	Oil capacity (L)	About 0.6 ~ 0.7	
Door differential	Reduction gear type	Hypoid gear	
Rear differential	Reduction gear ratio	2.53	
	Final drive gear backlash mm(in.)	0.1 ~ 0.15	
	Differential gear backlash mm(in.)	0 ~ 0.05	







General Information

DS-3

Tightening torque

	Items	Nm	kgf.m	lb-ft
	Wheel nut	88.3 ~ 107.9	9.0 ~ 11.0	65.1 ~ 79.6
	Driveshaft nut	196.1 ~ 274.5	20.0 ~ 28.0	144.6 ~ 202.5
	Strut assembly lower mounting bolt	137.2 ~ 156.9	14.0 ~ 16.0	101.2 ~ 115.7
	Break caliper mounting bolt	78.4 ~ 98.0	8.0 ~ 10.0	57.8 ~ 72.3
Front	Wheel speed sensor mounting bolt	6.9 ~ 10.8	0.7 ~ 1.1	5.1 ~ 8.0
	Break disc mounting screw	4.9 ~ 5.9	0.5 ~ 0.6	3.6 ~ 4.3
	Lower arm assembly mounting bolt	137.2 ~ 156.9	14.0 ~ 16.0	101.2 ~ 115.7
	Lower arm ball joint mounting bolt	98.1 ~ 117.7	10.0 ~ 12.0	72.3 ~ 86.8
	Tie rod end ball joint mounting nut	34.3 ~ 44.1	3.5 ~ 4.5	25.3 ~ 32.5
	Wheel nut	88.3 ~ 107.9	9.0 ~ 11.0	65.1 ~ 79.6
	Driveshaft castle nut	196.1 ~ 274.5	20.0 ~ 28.0	144.6 ~ 202.5
	Shock absorber upper mounting nut	137.2 ~ 156.9	14.0 ~ 16.0	101.2 ~ 115.7
	Break caliper mounting bolt	78.4 ~ 98.3	8.0 ~ 10.0	57.8 ~ 72.3
	Wheel speed sensor mounting bolt	6.9 ~ 10.8	0.7 ~ 1.1	5.1 ~ 8.0
Rear	Break disc mounting screw	4.9 ~ 5.9	0.5 ~ 0.6	3.6 ~ 4.3
rtodi	Hub assembly mounting bolt	78.5 ~ 88.3	8.0 ~ 9.0	57.9 ~ 65.1
محدود)	Upper arm ball joint mounting nut	2WD: 137.2 ~ 156.9 4WD: 98.1 ~ 117.7	2WD: 14.0 ~ 16.0 4WD: 10.0 ~ 12.0	2WD: 101.2 ~ 115.7 4WD: 72.3 ~ 86.8
	Lower arm mounting bolt	137.2 ~ 156.9	14.0 ~ 16.0	101.2 ~ 1 <mark>15.7</mark>
	Assist arm ball joint mounting nut	137.2 ~ 156.9	14.0 ~ 16.0	101.2 ~ 115.7
	Trailing arm mounting bolt	34.3 ~ 53.9	3.5 ~ 5.5	25.3 ~ 39.7
Front	Front propeller shaft mounting bolt	49.0 ~ 68.6	5.0 ~ 7.0	36.2 ~ 50.6
Front propellershaft	Propeller shaft center bearing bracket mounting bolt	49.0 ~ 53.9	5.0 ~ 7.0	36.2 ~ 50.6
	Rear propeller shaft mounting bolt	49.0 ~ 68.6	5.0 ~ 7.0	36.2 ~ 50.6
	Rear differential mounting bolt	68.6 ~ 88.3	7.0 ~ 9.0	50.6 ~ 65.1
Rear Differential	Differential cover mounting bolt	39.2 ~ 49.0	4.0 ~ 5.0	28.9 ~ 36.2
2oroniui	Rear differential drain plug	49.0 ~ 68.6	5.0 ~ 7.0	36.2 ~ 50.6
	Rear differential filler plug	39.2 ~ 58.8	4.0 ~ 6.0	28.9 ~ 43.3

⚠CAUTION

Replace self-locking nuts with new ones after removal.

Driveshaft and axle

Lubricants

Items		Lubricants	Quantity
Front drives hoft	BJ	RBA	100g
Front driveshaft	VTJ	CW-13TJ	150g
Door duivechoft	BJ	RBA	60g
Rear driveshaft	TJ	CW-13TJ	90g

Special Service Tools

Tool(Number and Name)	Illustration	Use
09517-43101Working base		Support for the differential carrier
	E1743101	
09517-43500Adapter		Support for the differential carrier(Use with 09517-43101)
نه (مسئولیت محدود)	E1743500	
09495-3K000Band installer	اولین سامانی حیتال تعمیر	Installation of ear type boot band
	KINF500C	
09495-3P100 Band installer		Installation of hook type boot band
	AILG650A	

General Information

DS-5

Troubleshooting

Trouble Symptom	Probable cause	Remedy
Vehicle pulls to one side	Scoring of driveshaft ball joint	Replace
	Wear, rattle or scoring of wheel bearing	Replace
	Defective front suspension and steering	Adjustment or Replace
Vibration	Wear, damage or bending of driveshaft	Replace
	Driveshaft rattle and hub serration	Replace
	Wear, rattle or scratching of wheel bearing	Replace
Shimmy	Defective wheel balance	Adjustment or Replace
	Defective front suspension and steering	Adjustment or Replace
Excessive noise	Wear, damage or bending of driveshaft	Replace
	Rattle of driveshaft and worn hub splines	Replace
	Wear, rattle or scoring of wheel bearing	Replace
	Loose hub nut	Adjustment or Replace
	Defective front suspension and steering	Adjustment or Replace



شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



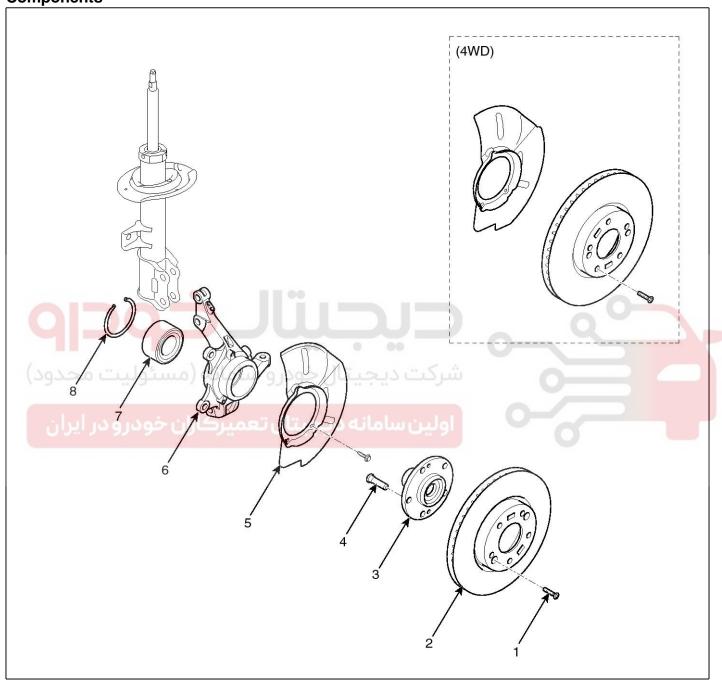
Driveshaft and axle

Front Axle Assembly

Front Hub / Knuckle / Tone Wheel

Components

DS-6



SSLDS0030D

- 1. Brake disk screw
- 2. Brake disc
- 3. Hub
- 4. Hub bolt

- 5. Dust cover
- 6. Knuckle
- 7. Wheel bearing
- 8. Snap ring

Front Axle Assembly

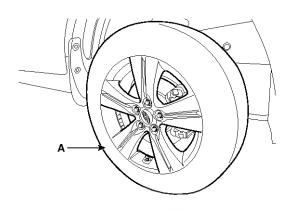
DS-7

Replacement

- Loosen the wheel nuts slightly.
 Raise the vehicle, and make sure it is securely supported.
- 2. Remove the front wheel and tire (A) from front hub.

Tightening torque:

88.3 \sim 107.8N.m (9.0 \sim 11.0kgf.m, 65.0 \sim 79.5lb-ft)





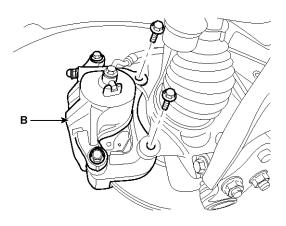
SSLDS0025D

Be careful not to damage to the hub bolts when removing the front wheel and tire (A).

3. Remove the brake caliper mounting bolts, and then place the brake caliper assembly (B) with wire.

Tightening torque:

78.4 ~ 98.0N.m (8.0 ~ 10.0kgf.m, 57.8 ~ 72.3lb-ft)

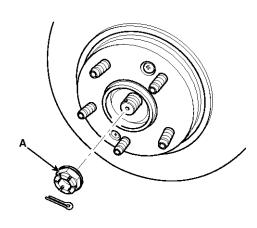


SSLDS0020D

4. Remove castle nut (A) from the front hub under applying the break.

Tightening torque:

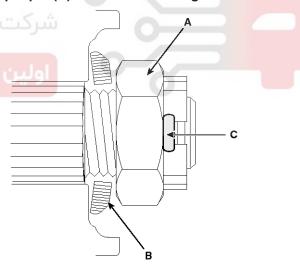
 $196.1 \sim 274.5$ N.m (20.0 ~ 28.0 kgf.m, $144.6 \sim 202.5$ lb-ft)



SSLDS0018D

ACAUTION

The washer (B) should be assembled with convex surface outward when installing the castle nut (A) and split pin (C) Also, don't reuse split pin (C) when reassembling.



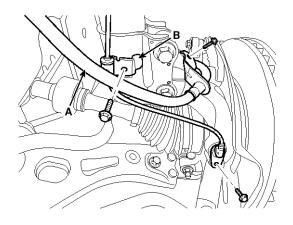
EIKD010A

Driveshaft and axle

5. Remove the brake hose (A) and wheel speed sensor (B).

Tightening torque:

 $6.8 \sim 10.8$ N.m (0.7 ~ 1.1 kgf.m, $5.1 \sim 7.9$ lb-ft)

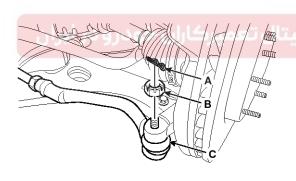


SSLDS0021D

- 6. Remove the tie rod end ball joint(C) from the knuckle.
 - 1) Remove the split pin (A).
 - 2) Remove the castle nut (B).

Tightening torque:

34.3 ~ 44.1N.m (3.5 ~ 4.5kgf.m, 25.3 ~ 32.5lb-ft)

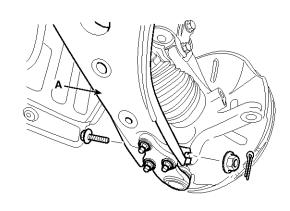


SSLDS0023D

7. Remove the lower arm (A) mounting bolt and nut from the knuckle.

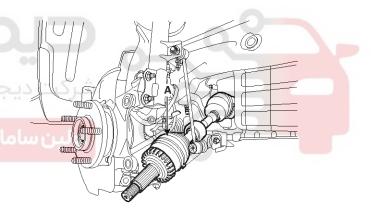
Tightening torque:

98.0 ~ 117.6N.m (10.0 ~ 12.0kgf.m, 72.3 ~ 86.7lb-ft)



SSLDS0001D

8. Disconnect the drive shaft end (A) from the knuckle.



SLMDS0008D

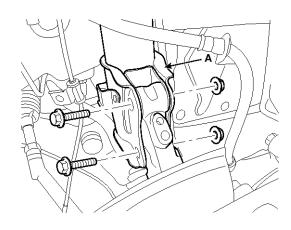
Front Axle Assembly

DS-9

Loosen the strut mounting bolts and then remove the hub and knuckle assembly from the strut assembly (A).

Tightening torque:

137.2 ~ 156.9N.m (14.0 ~ 16.0kgf.m, 101.2 ~ 115.7lb-ft)



SSLDS0022D

ACAUTION

Be careful not to damage the boot and rotor teeth.

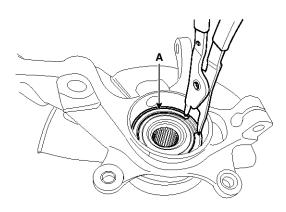
10. Install in the reverse order of removal.

خودر و سامانه (مسئولیت Inspection

- 1. Check the hub for cracks and the splines for wear.
- 2. Check the brake disc for scoring and damage.
- 3. Check the knuckle for cracks
- 4. Check the bearing for cracks or damage.

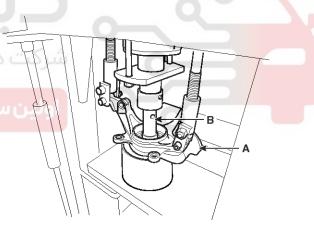
Disassembly

1. Using the snap ring pliers, remove the snap ring (A).



SLMDS0010D

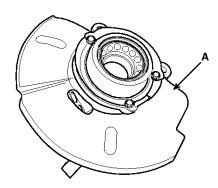
- 2. Remove the hub assembly from the knuckle assembly.
 - 1) Install the front knuckle assembly (A) on press.
 - 2) Lay a suitable adapter (B) upon the hub assembly shaft.



SLMDS0011D

Driveshaft and axle

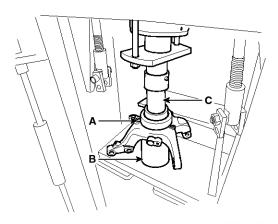
3. Remove the dust cover (A).



SLMDS0012D

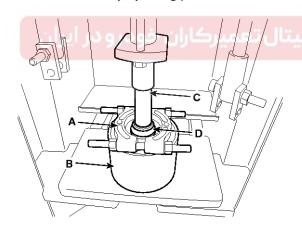
- 4. Remove the hub bearing inner race from the hub assembly
 - 1) Install a suitable tool (A) for removing the hub bearing inner race on the hub assembly.
 - 2) Lay the hub assembly and tool (A) upon a suitable adapter (B).
 - 3) Lay a suitable adapter (C) upon the hub assembly shaft.
 - 4) Remove the hub bearing inner race (D) from the hub assembly by using press.

- 5. Remove the hub bearing outer race from the knuckle assembly.
 - Lay the hub assembly (A) upon a suitable adapter (B).
 - 2) Lay a suitable adapter (C) upon the hub bearing outer race.
 - 3) Remove the hub bearing outer race from the knuckle assembly by using press.



SLMDS0013D

6. Replace hub bearing with a new one.



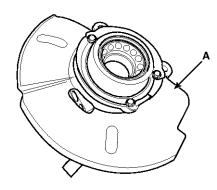
SUNDS6003D

Front Axle Assembly

DS-11

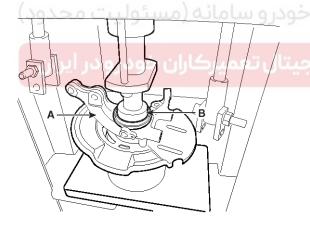
Reassembly

1. Install the dust cover (A).



SLMDS0012D

- 2. Install the hub bearing to the knuckle assembly.
 - 1) Lay the knuckle assembly (A) on press.
 - 2) Lay a new hub bearing upon the knuckle assembly (A).
 - 3) Lay a suitable adapter (B) upon the hub bearing.
 - 4) Install the hub bearing to the knuckle assembly by using press.



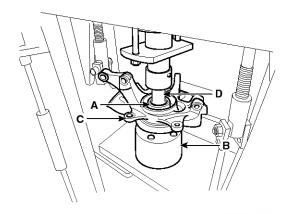
SUNDS6005D

ACAUTION

Do not press against the inner race of the hub bearing because that can cause damage to the bearing assembly.

Always use a new wheel bearing assembly.

- 3. Install the hub assembly to the knuckle assembly.
 - Lay the hub assembly (A) upon a suitable adapter
 (B).
 - 2) Lay the knuckle assembly (C) upon the hub assembly (A).
 - 3) Lay a suitable adapter (D) upon the hub bearing.
 - 4) Install the hub assembly (A) to the knuckle assembly (C) by using press.

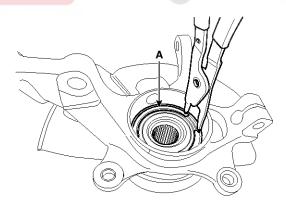


SLMDS0014D

⚠CAUTION

Do not press against the inner race of the hub bearing because that can cause damage to the bearing assembly.

Install the snap ring (A).



SLMDS0010D

Driveshaft and axle

Driveshaft Assembly

Front Driveshaft

Components



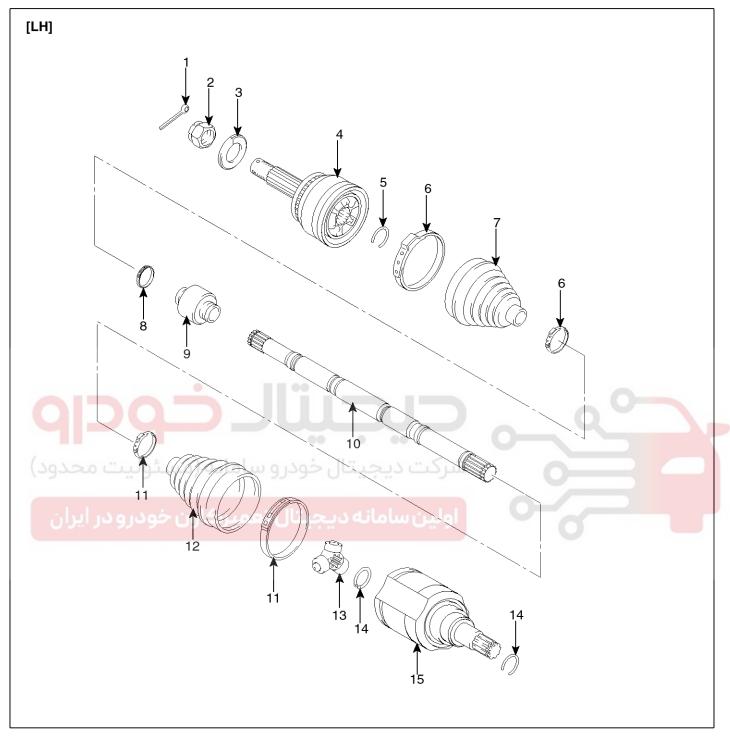
SSLDS0004D

- 1. Front driveshaft (LH)
- 2. inner shaft

3. Front driveshaft (RH)

Driveshaft Assembly

DS-13



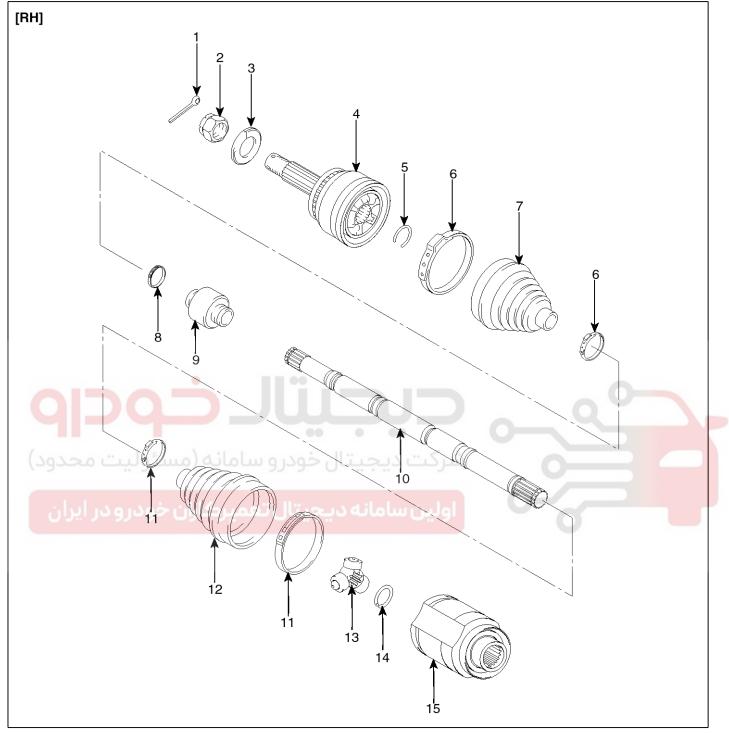
SSLDS0031D

- 1. Split pin
- 2. Castle nut
- 3. washer
- 4. BJ assembly
- 5. Clip A

- 6. BJ boot band
- 7. BJ boot
- 8. Dynamic damper band
- 9. Dynamic damper
- 10. Shaft

- 11. VTJ boot band
- 12. VTJ boot
- 13. Spider assembly
- 14. Circlip
- 15. VTJ housing

Driveshaft and axle



SSLDS0032D

- 1. Split pin
- 2. Castle nut
- 3. Washer
- 4. BJ assembly
- 5. Clip A

- 6. BJ boot band
- 7. BJ boot band
- 8. Dynamic damper band
- 9. Dynamic damper
- 10. Shaft

- 11. VTJ boot band
- 12. VTJ boot
- 13. Spider assembly
- 14. Circlip
- 15. VTJ housing

Driveshaft Assembly

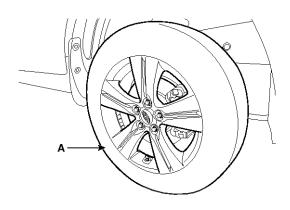
DS-15

Replacement

- Loosen the wheel nuts slightly.
 Raise the vehicle, and make sure it is securely supported.
- 2. Remove the front wheel and tire (A) from front hub.

Tightening torque:

88.3 \sim 107.8N.m (9.0 \sim 11.0kgf.m, 65.0 \sim 79.5lb-ft)





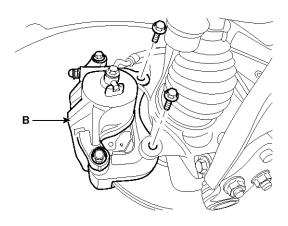
SSLDS0025D

Be careful not to damage to the hub bolts when removing the front wheel and tire (A).

3. Remove the brake caliper mounting bolts, and then place the brake caliper assembly (B) with wire.

Tightening torque:

78.4 ~ 98.0N.m (8.0 ~ 10.0kgf.m, 57.8 ~ 72.3lb-ft)

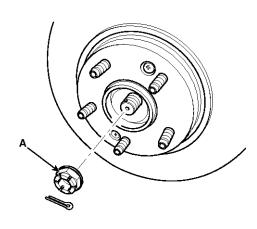


SSLDS0020D

4. Remove castle nut (A) from the front hub under applying the break.

Tightening torque:

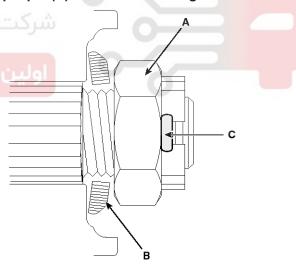
 $196.1 \sim 274.5$ N.m (20.0 ~ 28.0 kgf.m, $144.6 \sim 202.5$ lb-ft)



SSLDS0018D

ACAUTION

The washer (B) should be assembled with convex surface outward when installing the castle nut (A) and split pin (C) Also, don't reuse split pin (C) when reassembling.



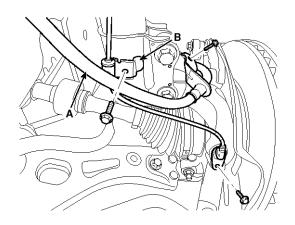
EIKD010A

Driveshaft and axle

5. Remove the brake hose (A) and wheel speed sensor (B).

Tightening torque:

 $6.8 \sim 10.8$ N.m (0.7 ~ 1.1 kgf.m, $5.1 \sim 7.9$ lb-ft)

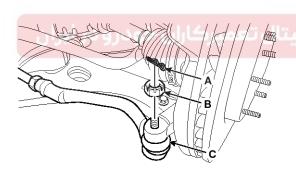


SSLDS0021D

- 6. Remove the tie rod end ball joint(C) from the knuckle.
 - 1) Remove the split pin (A).
 - 2) Remove the castle nut (B).

Tightening torque:

 $34.3 \sim 44.1$ N.m (3.5 ~ 4.5 kgf.m, 25.3 ~ 32.5 lb-ft)



SSLDS0023D

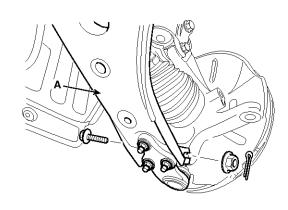
ACAUTION

Apply a few drops of oil to the special tool. (Boot contact part)

7. Remove the lower arm (A) mounting bolt from the knuckle.

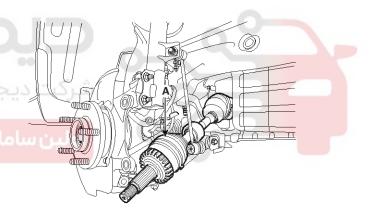
Tightening torque:

98.0 ~ 117.6N.m (10.0 ~ 12.0kgf.m, 72.3 ~ 86.7lb-ft)



SSLDS0001D

8. Disconnect the drive shaft end (A) from the knuckle.

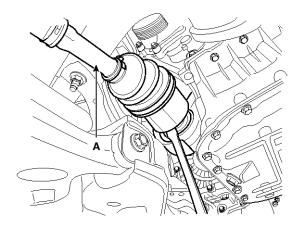


SLMDS0008D

Driveshaft Assembly

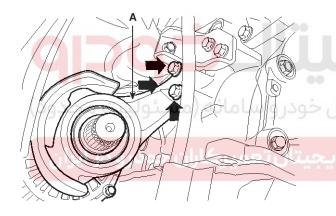
DS-17

9. Remove the driveshaft assembly (A) from the inner shaft.



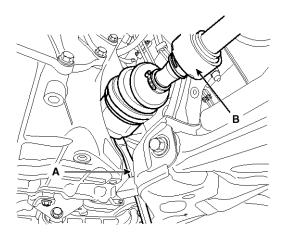
SLMDS0018D

10.Loosen the inner shaft mounting bolts and then disconnect the inner shaft (A).



SLMDS0019D

11.Insert a pry bar (A) between the transaxle case and joint case, and separate the driveshaft (B) from the transaxle case.



SLMDS0020D

12. Install in the reverse order of removal.

CAUTION

- Use a pry bar (A) being careful not to damage the transaxle and joint.
- Do not insert the pry bar(A) too deep, as this may cause damage to the oil seal.
- Do not pull the driveshaft by excessive force it may cause components inside the joint kit to dislodge resulting in a torn boot or a damaged bearing.
- Plug the hole of the transaxle case with the oil seal cap to prevent contamination.
- · Support the driveshaft properly.
- Replace the retainer ring whenever the driveshaft is removed from the transaxle case.

Driveshaft and axle

Inspection

- Check the driveshaft boots for damage and deterioration.
- 2. Check the ball joint for wear and damage.
- 3. Check the splines for wear and damage.
- 4. Check the dynamic damper for cracks, wear and position.



EIKD019A

5. Check the driveshaft for cracks and wears.

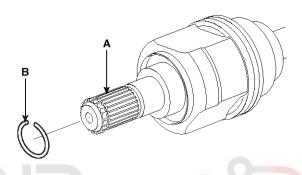
KXDDE07A

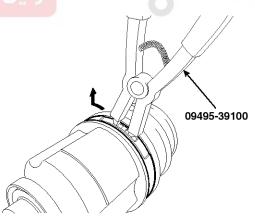
 Remove the both boot clamps from the transaxle side VTJ case. Using a flat-tipped (-) screwdriver, remove the both clamps of the transaxle side.

Disassembly

CAUTION

- Do not disassemble the BJ assembly.
- Special grease must be applied to the driveshaft joint. Do not substitute with another type of grease.
- The boot band should be replaced with a new one.
- 1. Remove the circlip (B) from driveshaft splines (A) of the transaxle side VTJ case.



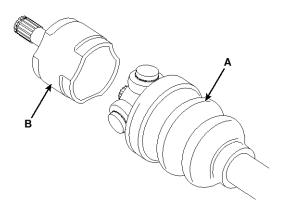


SUNDS6501D

Driveshaft Assembly

DS-19

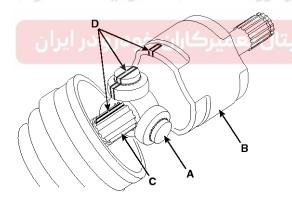
- 3. Pull out the boot from the transaxle side joint (VTJ).
- 4. While dividing joint boot (A) of the transaxle side, wipe the grease in VTJ case (B) and collect them respectively.



AIGE004B

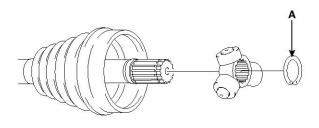
ACAUTION

- Be careful not to damage the boot.
- According to below the illustrated, put marks (D) on roller of spider assembly (A), VTJ case (B) and spline part (C), for providing assembly.



KXDDE11A

5. Using a snap ring plier or flat-tipped (-) screwdriver, remove the circlip (A).

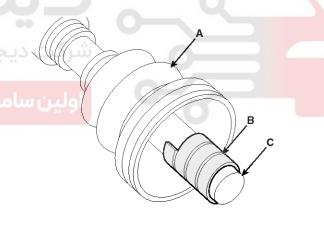


KXDDE12A

- 6. Clean the spider assembly.
- 7. Remove the boot (A) of the transaxle side joint (VTJ).

ACAUTION

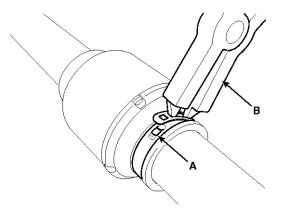
For reusing the boot (A), wrap tape (B) around the driveshaft splines (C) to protect the boot (A).



KXDDE14A

Driveshaft and axle

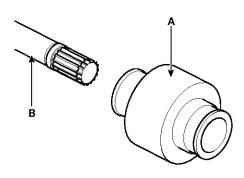
8. Using a plier or flat-tipped (-) screwdriver, remove the clamp (B) of the dynamic damper (A).



SUNDS6506D

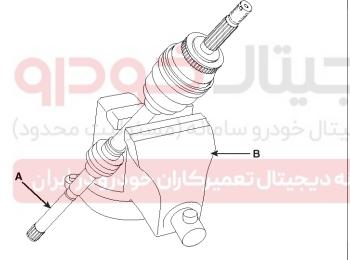
9. Fix the driveshaft (A) with a vice (B) as illustrated.

11. Saperate the dynamic damper (A) from the shaft (B) carefully.



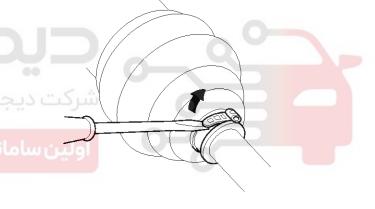
AIGE004D

12. Using a plier or flat-tipped (-) screwdriver, remove the clamp on the side of wheel.



KXDDE16A

10. Apply soap powder on the shaft to prevent being damaged between the shaft spline and the dynamic damper when the dynamic damper is removed.



KIQE160A

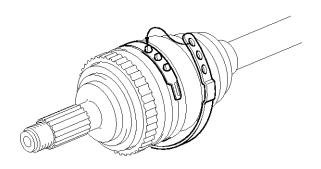
13. Pull out the joint (BJ) on the side of wheel into the transaxle direction. Be careful not to damage the boot.

Driveshaft Assembly

DS-21

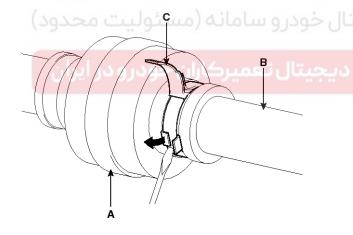
Reassembly

- 1. Wrap tape around the driveshaft splines (VTJ. side) to prevent damage to the boots.
- 2. Apply grease to the driveshaft and install the BJ boots.
- 3. Install the bands to both BJ boots.



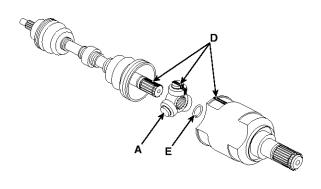
KIQE105A

 To reassemble the dynamic damper (A), keeping the shaft (B) in the straight, tighten the dynamic damper (A) with dynamic damper band (C), as the illustration.

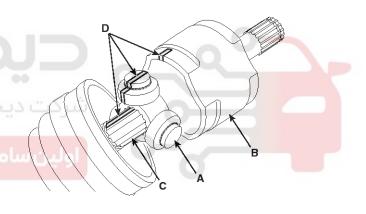


KIQE151A

- 5. Install the VTJ boot bands and VTJ boot.
- 6. Install the spider assembly (A) and the circlip (E) to the spline (C) on the driveshaft.
 - At this time align the marks (D) each other.



KXDDE20A



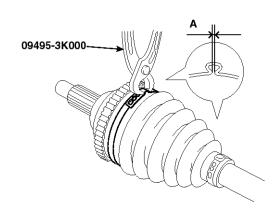
KXDDE11A

- 7. Install the clip to the VTJ case (B).
- 8. Add the specified grease to the VTJ as mush as wiped away at inspection.
- 9. Install the VTJ boots.
- 10. Install the bands to both VTJ boots.

Driveshaft and axle

11. Using the SST(09495-3K000), secure the boot bands.

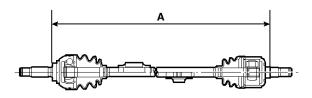
Clearance (A): 2.0 mm (0.079 in.) or less



AILG500L

12.To control the air in the VTJ boot, keep the specified distance between the boot bands when they are tightened.

LH side	RH side
536.6	827.5
+26.8/-20.2	+26.8/-20.2
531.6	511.4
+26.8/-20.2	+26.8/-20.2
	835.7
557.9	+26.8/-20.2
+26.8/-20.2	511.4
	+26.8/-20.2
	855.4
542.0	+26.8/-20.2
+26.8/-20.2	511.4
	+26.8/-20.2
	536.6 +26.8/-20.2 531.6 +26.8/-20.2 557.9 +26.8/-20.2



EIKD022A



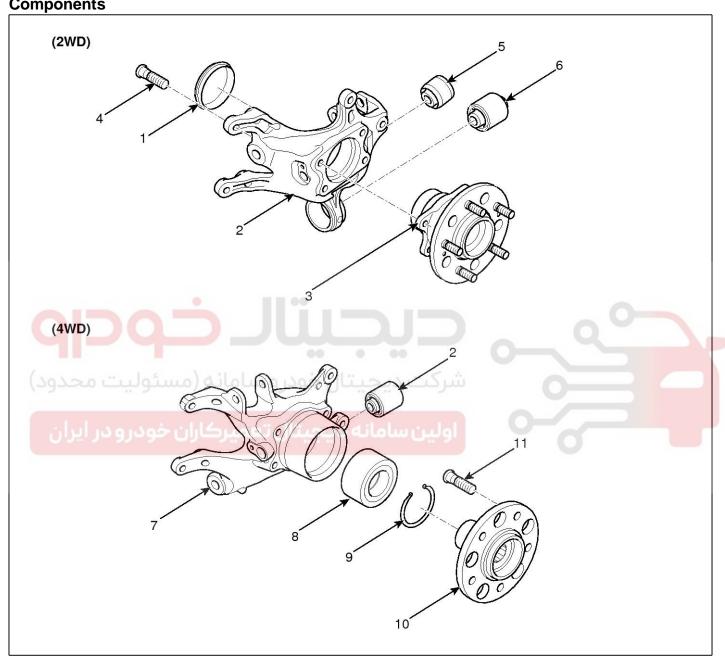
Rear Axle Assembly

DS-23

Rear Axle Assembly

Rear Hub - Carrier

Components



SSLDS0034D

- 1. Hub cover
- 2. Carrier assembly
- 3. Hub & bearing assembly
- 4. Hub mounting bolt
- 5. Bush
- 6. Bush

- 7. Carrier assembly
- 8. Bearing
- 9. Snap ring
- 10. Hub assembly
- 11. Hub bolt
- 12. Bush

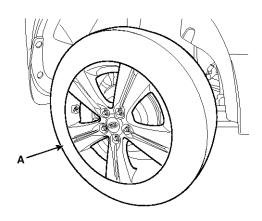
Driveshaft and axle

Replacement

- 1. Loosen the wheel nuts slightly. Raise the vehicle, and make sure it is securely supported.
- 2. Remove the rear wheel and tire (A) from rear hub.

Tightening torque:

 $88.3 \sim 107.8$ N.m (9.0 ~ 11.0 kgf.m, 65.0 ~ 79.5 lb-ft)



SSLDS0027D

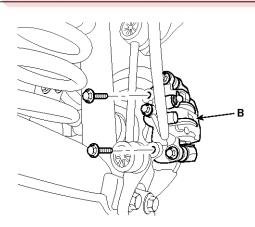
ACAUTION

Be careful not to damage to the hub bolts when removing the rear wheel and tire (A).

3. Remove the brake caliper mounting bolts, and then place the brake caliper assembly (B) with wire.

Tightening torque:

78.4 ~ 98.0N.m (8.0 ~ 10.0kgf.m, 57.8 ~ 72.3lb-ft)

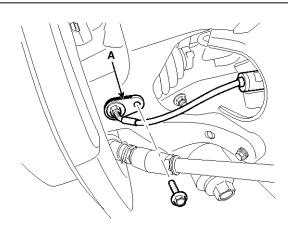


SSLDS0026D

4. Remove the wheel speed sensor (A), from the knuckle.

Tightening torque:

 $6.8 \sim 10.8$ N.m (0.7 ~ 1.1 kgf.m, $5.1 \sim 7.9$ lb-ft)

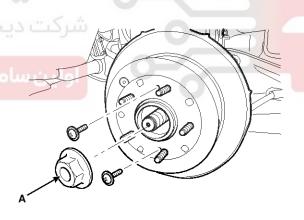


SSLDS0005D

5. Remove castle nut (A) from the front hub under applying the break.

Tightening torque:

 $196.1 \sim 274.5$ N.m (20.0 ~ 28.0 kgf.m, $144.6 \sim 202.5$ lb-ft)

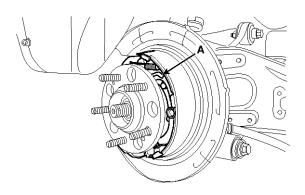


SSLDS0006D

Rear Axle Assembly

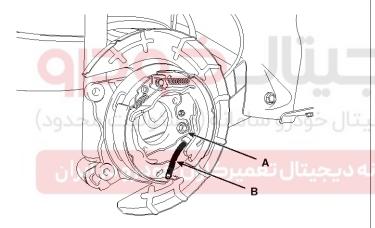
DS-25

Remove the rear brake lining assembly (A).(Refer to BR group - Parking brake system)



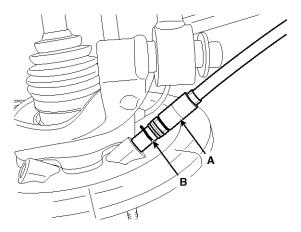
SLMDS0027D

7. Remove the parking brake cable (B) from the brake shoe (A).



STDBR9110D

8. Remove the parking brake cable retaining (B), from the parking brake cable (A).

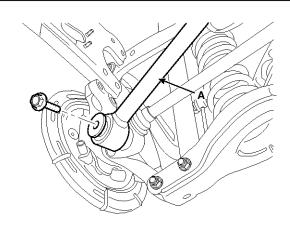


SLMBR0109D

9. Remove the assist arm (A) from the rear axle carrier.

Tightening torque:

 $137.2 \sim 156.9 \text{N.m} (14.0 \sim 16.0 \text{kgf.m}, 101.2 \sim 115.7 \text{lb-ft})$

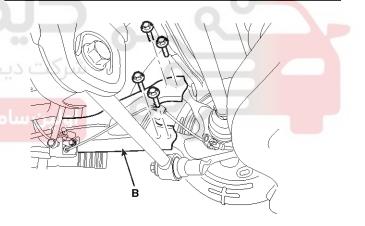


SSLDS0008D

10. Remove the trailing arm (B) from the rear axle carrier.

Tightening torque:

 $34.3 \sim 53.9$ N.m ($3.5 \sim 5.5$ kgf.m, $25.3 \sim 39.7$ lb-ft)



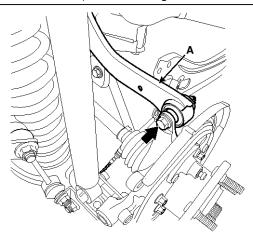
SSLDS0007D

Driveshaft and axle

11. Remove the upper arm (A) from the rear axle carrier.

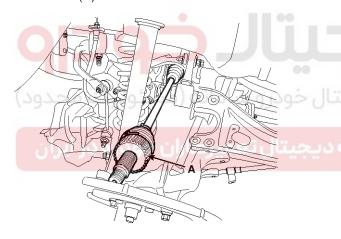
Tightening torque:

 $98.0 \sim 117.6 \text{N.m} \; (10.0 \sim 12.0 \text{kgf.m}, \, 72.3 \sim 86.7 \text{lb-ft})$



SLMDS0032D

12. Push the rear axle carrier outward and separate the driveshaft (A) from the axle hub.

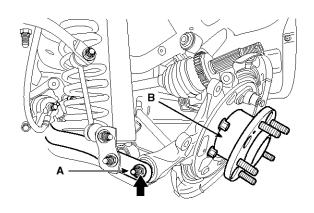


SLMDS0033D

13. Remove the lower arm (A) from the rear axle carrier(B).

Tightening torque:

137.2 ~ 156.9N.m (14.0 ~ 16.0kgf.m, 101.2 ~ 115.7lb-ft)



SLMDS0034N

14. Install in the reverse order of removal.

Inspection

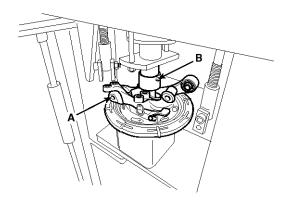
- 1. Check the hub for cracks and the splines for wear.
- 2. Check the brake disc for scoring and damage.
- 3. Check the rear axle carrier for cracks
- 4. Check the bearing for cracks or damage.

Rear Axle Assembly

DS-27

Disassembly

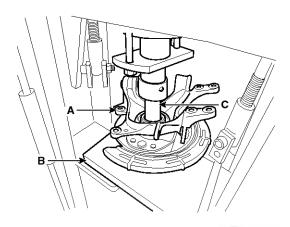
- 1. Remove the hub assembly form the near knuckle assembly.
 - 1) Install the rear knuckle assembly (A) on press.
 - 2) Lay a suitable adapter (B) upon the hub assembly



SLMDS0035D

2. Using the snap ring pliers, remove the snap ring (A).

- Remove the hub bearing outer race form the hub assembly.
 - 1) Lay the knuckle assembly (A) upon a suitable adapter (B).
 - 2) Lay a suitable adapter (C) upon the hub bearing outer race.
 - 3) Remove the hub bearing outer race from the knuckle assembly by using press.



SLMDS0037D

4. Replace hub bearing with a new one.

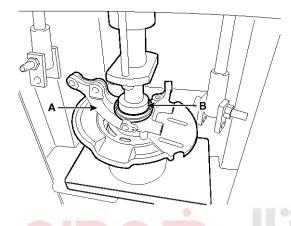


SLMDS0036D

Driveshaft and axle

Reassembly

- 1. Install the hub bearing to the knuckle assembly.
 - 1) Lay the knuckle assembly (A) on press.
 - 2) Lay a new hub bearing upon the knuckle assembly (A).
 - 3) Lay a suitable adapter (B) upon the hub bearing.
 - 4) Install the hub bearing to the knuckle assembly by using press.



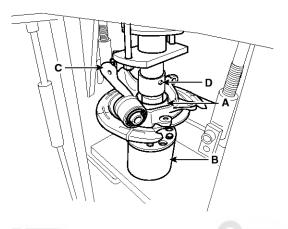
SUNDS6005D

ACAUTION

Do not press against the inner race of the hub bearing because that can cause damage to the bearing assembly.

Always use a new wheel bearing assembly.

- 2. Install the hub assembly to the knuckle assembly.
 - Lay the hub assembly (A) upon a suitable adapter
 (B).
 - 2) Lay the knuckle assembly (C) upon the hub assembly (A).
 - 3) Lay a suitable adapter (D) upon the hub bearing.
 - 4) Install the hub assembly (A) to the knuckle assembly (C) by using press.

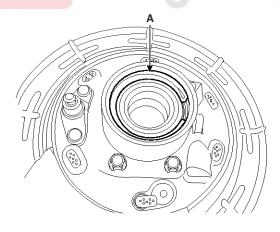


SLMDS0038D

⚠CAUTION

Do not press against the inner race of hub bearing because that can cause damage to the bearing assembly.

3. Install the snap ring (A).



SLMDS0036D

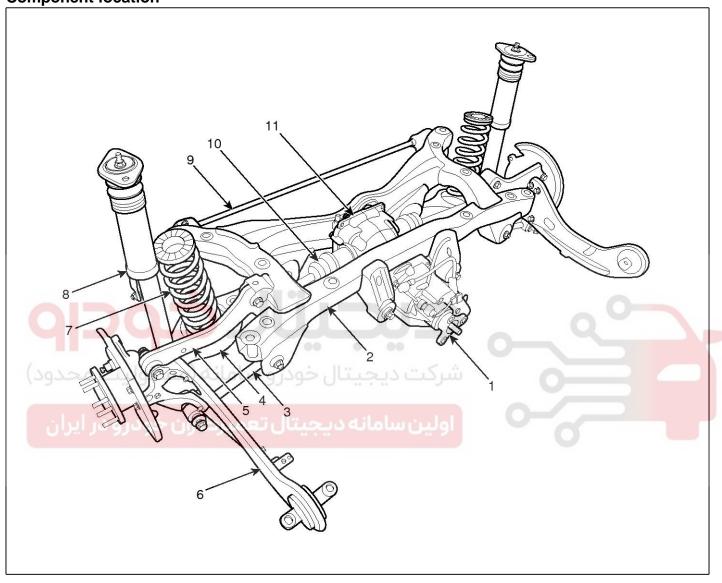
Rear Driveshaft Assembly

DS-29

Rear Driveshaft Assembly

Rear Driveshaft

Component location



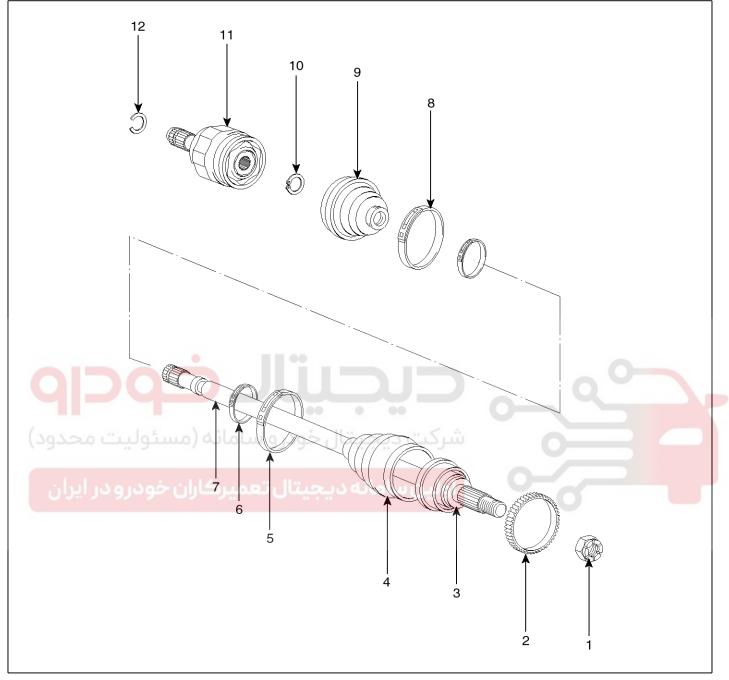
SSLDS0024D

- 1. Coupling
- 2. Sub frame
- 3. Assist arm
- 4. Lower arm
- 5. Upper arm

- 6. Trailing arm
- 7. Coil spring
- 8. Shock absorber
- 9. Stabilizer
- 10. Drive shaft
- 11. Differential carrier assembly

Driveshaft and axle

Components



SSLDS0035D

- 1. Lock nut
- 2. Tone wheel
- 3. BJ assembly
- 4. BJ boot

- 5. BJ boot big part band
- 6. Boot small part band
- 7. Shaft
- 8. TJ boot big part band
- 9. TJ boot
- 10. Snap ring
- 11. TJ assembly
- 12. Circlip

Rear Driveshaft Assembly

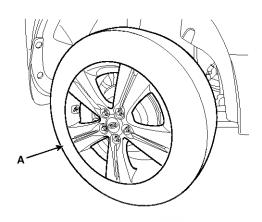
DS-31

Replacement

- Loosen the wheel nuts slightly.
 Raise the vehicle, and make sure it is securely supported.
- 2. Remove the rear wheel and tire (A) from rear hub.

Tightening torque:

88.3 \sim 107.8N.m (9.0 \sim 11.0kgf.m, 65.0 \sim 79.5lb-ft)



∆CAUTION

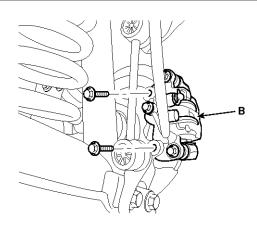
SSLDS0027D

Be careful not to damage to the hub bolts when removing the rear wheel and tire (A).

3. Remove the brake caliper mounting bolts, and then place the brake caliper assembly (B) with wire.

Tightening torque:

78.4 ~ 98.0N.m (8.0 ~ 10.0kgf.m, 57.8 ~ 72.3lb-ft)

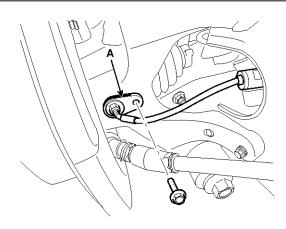


SSLDS0026D

4. Remove the wheel speed sensor (A), from the knuckle.

Tightening torque:

 $6.8 \sim 10.8$ N.m (0.7 ~ 1.1 kgf.m, $5.1 \sim 7.9$ lb-ft)

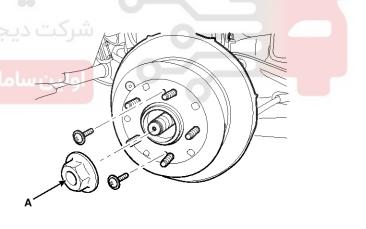


SSLDS0005D

5. Remove castle nut (A) from the front hub under applying the break.

Tightening torque:

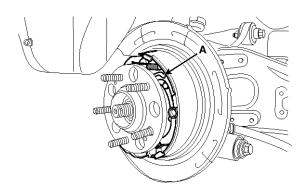
196.1 ~ 274.5N.m (20.0 ~ 28.0kgf.m, 144.6 ~ 202.5lb-ft)



SSLDS0006D

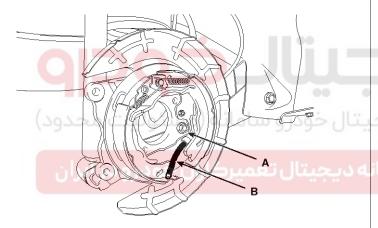
Driveshaft and axle

Remove the rear brake lining assembly (A). (Refer to BR group - Parking brake system)



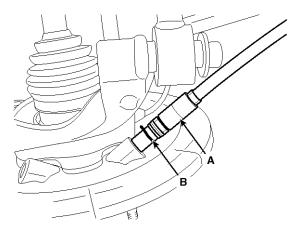
SLMDS0027D

7. Remove the parking brake cable (B) from the brake shoe (A).



STDBR9110D

8. Remove the parking brake cable retaining (B), from the parking brake cable (A).

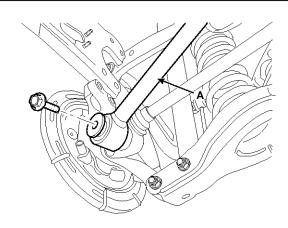


SLMBR0109D

9. Remove the assist arm (A) from the rear axle carrier.

Tightening torque:

 $137.2 \sim 156.9 \text{N.m} (14.0 \sim 16.0 \text{kgf.m}, 101.2 \sim 115.7 \text{lb-ft})$

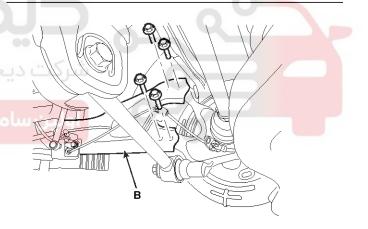


SSLDS0008D

10. Remove the trailing arm (B) from the rear axle carrier.

Tightening torque:

 $34.3 \sim 53.9 \text{N.m} \ (3.5 \sim 5.5 \text{kgf.m}, \ 25.3 \sim 39.7 \text{lb-ft})$



SSLDS0007D

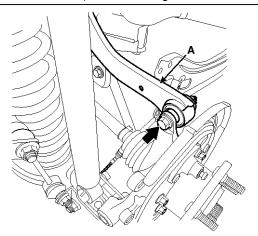
Rear Driveshaft Assembly

DS-33

11. Remove the upper arm (A) from the rear axle carrier.

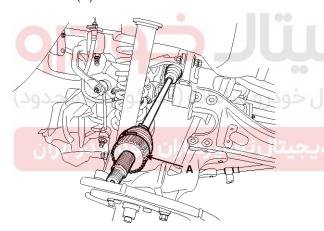
Tightening torque:

 $98.0 \sim 117.6 \text{N.m} (10.0 \sim 12.0 \text{kgf.m}, 72.3 \sim 86.7 \text{lb-ft})$



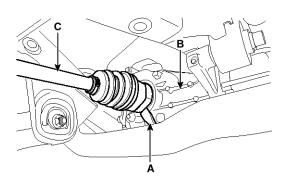
SLMDS0032D

12. Push the rear axle carrier outward and separate the driveshaft (A) from the axle hub.



SLMDS0033D

13. Insert a pry bar (A) between the differential case and joint case, and separate the driveshaft (B) from the differential case.



SSLDS0009D

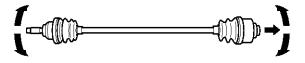
ACAUTION

- Use a pry bar (A) being careful not to damage the differential and joint.
- Do not insert the pry bar (A) too deep, as this may cause damage to the oil seal.
- Do not pull the driveshaft by excessive force it may cause components inside the joint kit to dislodge resulting in a torn boot or a damaged bearing.
- Plug the hole of the differential case with the oil seal cap to prevent contamination.
- · Support the driveshaft properly.
- Replace the retainer ring whenever the driveshaft is removed from the differential case.

Driveshaft and axle

Inspection

- Check the driveshaft boots for damage and deterioration.
- 2. Check the ball joint for wear and damage.
- 3. Check the splines for wear and damage.



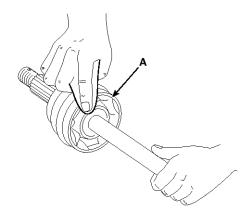
EIKD019A

- 4. Check the driveshaft for cracks and wears.
- 5. Check the TJ outer race, inner race, cage and balls for rust or damage.
- Check for water, foreign matter, or rust in the BJ boot.

⚠CAUTION

When the BJ assembly (A) is to be reused, do not wipe away the grease.

Check that there are no foreign substances in the grease. If necessary, clean the BJ assembly (A) and replace grease.



EIKD025A

Disassembly

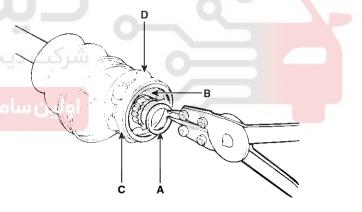
ACAUTION

- Do not disassemble the BJ assembly.
- Special grease must be applied to the driveshaft joint. Do not substitute with another type of grease.
- The boot band should be replaced with a new one.
- 1. Remove the TJ boot bands and pull the TJ boot from the TJ outer race.
 - Using a pliers or flat-tipped (-) screwdriver, remove the LH boot band and LH TJ boot band from the driveshaft.
 - 2) Remove RH boot band and RH TJ boot band in the same way of LH removal procedure.

ACAUTION

Be careful not to damage the boot.

- 2. Pull out the driveshaft from the TJ outer race.
- 3. Remove the snap ring (A) and take out the inner race(B), cage(C) and balls(D) as an assembly.



KIKD251C

4. Clean the inner race, cage and balls without disassembling.

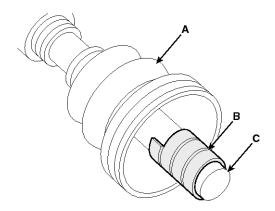
Rear Driveshaft Assembly

DS-35

Remove the BJ boot bands and pull out the TJ boot and BJ boot.

ACAUTION

If the boot (A) is to be reused, wrap tape(B) around the driveshaft splines(C) to protect the boot (A).



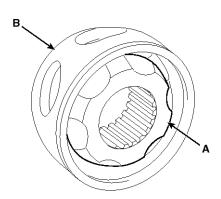
KXDDE14A

Reassembly

- 1. Wrap tape around the driveshaft splines (TJ side) to prevent damage to the boots.
- 2. Apply grease to the driveshaft and install the boots.
- 3. Apply the specified grease to the inner race (A) and cage (B). Install the cage (B) so that it is offset on the race as shown.

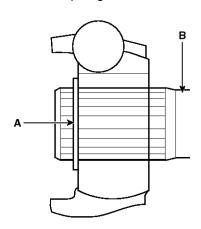
ACAUTION

Use the grease included in the repair kit.



EIKD023A

- 4. Apply the specified grease to the cage and fit the balls into the cage.
- 5. Position the chamfered side (A) as shown in the illustration. Install the inner race on the driveshaft(B), and then the snap ring.



EIKD020A

- 6. Apply the specified grease to the outer race and install the BJ outer race onto the driveshaft.
- 7. Apply the specified grease into the TJ boot and install the boot with a clip.
- 8. Tighten the TJ boot bands.
- Add the specified grease to the BJ as much as wiped away at inspection.
- 10. Install the boots.
- 11. Tighten the BJ boot bands.
- 12.To control the air in the TJ boot, keep the specified distance between the boot bands when they are tightened.

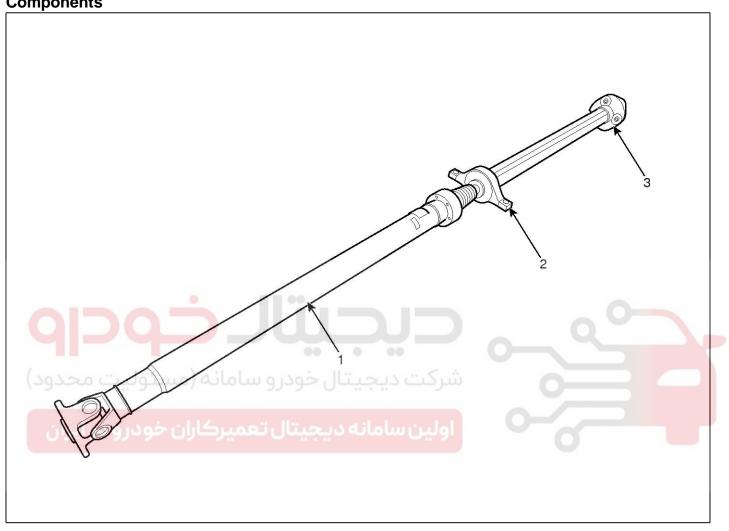
Distance (mm)	LH	RH
ALL	699.5 +22.8/-19.3	680.3 +22.8/-19.3

Driveshaft and axle DS-36

Propeller Shaft Assembly

Propeller Shaft

Components



SSLDS0014D

- 1. Front propeller shaft
- 2. Center bearing bracket

3. Rear propeller shaft

Propeller Shaft Assembly

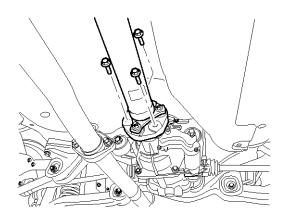
DS-37

Replacement

1. After making a match mark on the flange yoke and transaxle companion, remove the propeller shaft mounting bolts.

Tightening torque:

 $49.0 \sim 68.6$ N.m ($5.0 \sim 7.0$ kgf.m, $36.1 \sim 50.6$ lb-ft)

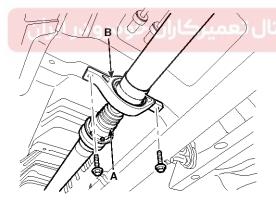


SSLDS0012D

2. Remove the center bearing bracket (A) mounting bolts.

Tightening torque:

 $49.0 \sim 68.6$ N.m ($5.0 \sim 7.0$ kgf.m, $36.1 \sim 50.6$ lb-ft)

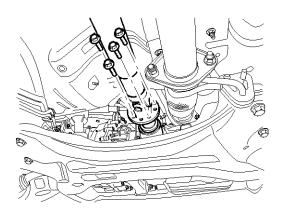


SSLDS0013D

3. After making a match mark on the flange yoke and transaxle companion, remove the propeller shaft mounting bolts.

Tightening torque:

 $49.0 \sim 68.6 \text{N.m} (5.0 \sim 7.0 \text{kgf.m}, 36.1 \sim 50.6 \text{lb-ft})$



SSLDS0011D

CAUTION

Use the hexagonal wrench to prevent damage of bolt head when removing bolts.

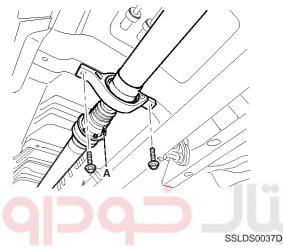
4. Install in the reverse order of removal.

Driveshaft and axle

Inspection

CV Joint and boots

- 1. Shift the transmission lever to Neutral.
- 2. Raise the vehicle off the ground, and support it with safety stands in the proper locations.
- Check the center bearing for excessive play or rattle and rubber for rent. If the center bearing has excessive play or rattle and rubber has rent, replace the propeller shaft assembly.

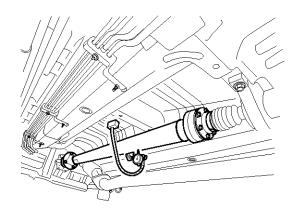


- Check the CV joint boot for damage and deterioration. If the boot is damaged or deteriored, replace the propeller shaft assembly.
- Check the CV joint for excessive play or rattle. If the CV joint have excessive play or rattle, replace the propeller shaft assembly.

Propeller shaft runout

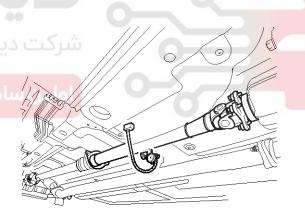
- 1. Install a dial indicator with its needle on the center of front propeller shaft or rear propeller shaft.
- 2. Turn the propeller shaft slowly and check the runout. Repeat this procedure for the other propeller shaft.

Front Propeller Shaft Runout: 0.3mm (0.012in.)



SLMDS0042D

Rear Propeller Shaft Runout: 0.3mm (0.012in.)



SLMDS0043D

3. If the runout on either propeller shaft exceeds the service limit, replace the propeller shaft assembly.

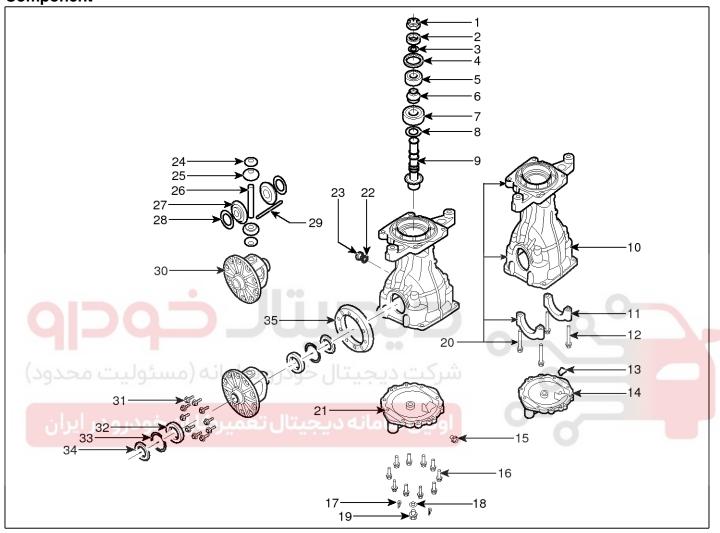
Differential Carrier Assembly

DS-39

Differential Carrier Assembly

Rear Differential Carrier

Component



SSLDS0036D

- 1. Drive pinion nut
- 2. Oil seal
- 3. O-ring
- 4. Oil seal
- 5. Front bearing
- 6. Spacer
- 7. Rear bearing
- 8. Inner shim
- 9. Drive pinion gear
- 10. Differential carrier
- 11. Bearing cap
- 12. Bearing cap bolt

- 13. Plate baffle
- 14. Carrier cover
- 15. Vent plug
- 16. Cover fix bolt
- 17. Dower pin
- 18. Filler gasket
- 19. Filler plug
- 20. Carrier sub assembly
- 21. Cover sub assembly
- 22. Drain plug gasket
- 23. Drain plug
- 24. Diff pinion washer

- 25. Diff pinion
- 26. Diff shaft
- 27. Diff gear
- 28. Diff gear washer
- 29. Lock pin
- 30. Diff case
- 31. Ring gear bolt
- 32. Diff bearing
- 33. Diff shim
- 34. Diff oil seal
- 35. F/driven gear

Driveshaft and axle

Replacement

1. Drain the differential gear oil.

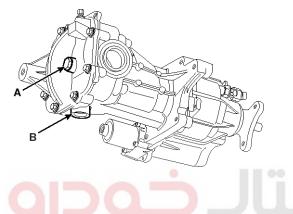
MNOTICE

Filler plug (A) & Drain plug (B) tightening torque.

Tightening torque

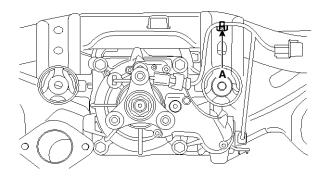
Filler plug (A): $39.2 \sim 58.8$ N.m (4.0 ~ 6.0 kgf.m, $28.9 \sim 43$ lb-ft)

Drain plug (B): $49.0 \sim 68.6 \text{ N.m}$ (5.0 $\sim 7.0 \text{ kgf.m}$, 36.2 $\sim 50.6 \text{ lb-ft}$)



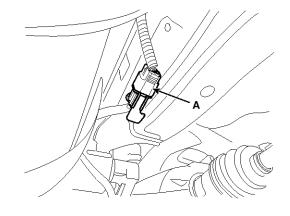
SSLDS1002

- 2. Remove the rear drive shaft. (Refer to rear drive shaft.)
- 3. Remove the propeller shaft. (Refer to propeller shaft.)
- 4. Disconnect the coupling control connector wire clip (A).



SSLDS1001D

5. Disconnect the coupling control connector (A).

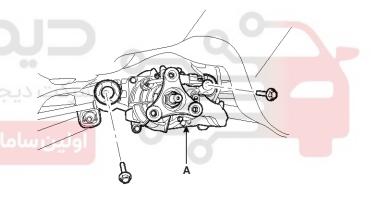


SSLDS0015D

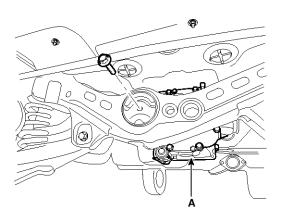
6. Support the differential assembly (A) with the jack.

Tightening torque:

 $68.6 \sim 88.3 \text{N.m} (7.0 \sim 9.0 \text{kgf.m}, 50.6 \sim 65.1 \text{lb-ft})$



SSLDS0017D

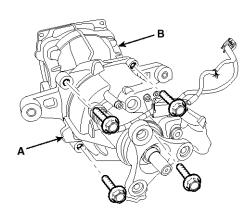


SSLDS0016D

Differential Carrier Assembly

DS-41

7. After loosen the bolt and then remove the differential carrier (B) from the coupling(A).



SSLDS1003D

- 8. Install in the reverse order of removal.
- 9. Add diff gear oil fluid to differential carrier.

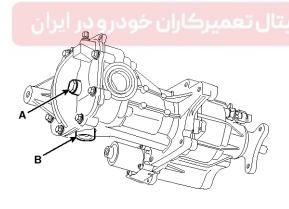
MNOTICE

Filler plug (A) & Drain plug (B) tightening torque.

Tightening torque

Filler plug (A): 39.2 ~ 58.8 N.m (4.0 ~ 6.0 kgf.m, 28.9 ~ 43 lb-ft)

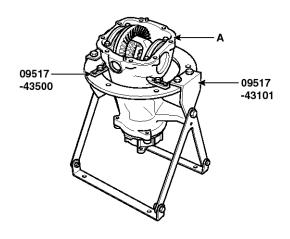
Drain plug (B): 49.0 ~ 68.6 N.m (5.0 ~ 7.0 kgf.m, 36.2 ~ 50.6 lb-ft)



SSLDS1002D

Inspection

Install the differential carrier assembly(A) with the special tools(09517-43101 & 09517-43500). Then carry out the following inspection.



KIQE610A

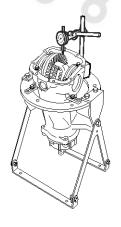
- 1. Check the final drive gear backlash by the following procedure.
 - 1) Place the drive pinion and move the drive gear to check backlash is within the standard range.

MOTICE

Measure at 4 points on the gear periphery.

Standard value:

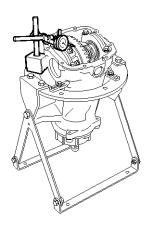
0.10 ~ 0.15mm (0.0039 ~ 0.0059in.)



KIQE610B

- 2. Check the drive gear back-face lash by the following procedure.
 - 1) Place a dial gauge on the back-face of the drive gear and measure the runout.

Limit: 0.05 mm (0.002 in)



KIQE610C

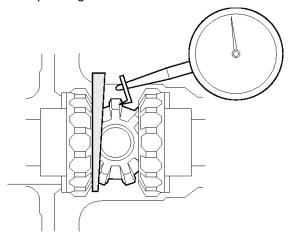
- 2) If the runout is beyond the limit, check that there are no foreign substances between the drive gear and differential case and, that the bolts fixing the drive gear are not loose.
- 3. Check the differential gear backlash by the following procedure.
 - Fix the side gear with a wedge so it cannot move and measure the differential gear backlash with a dial indicator on the pinion gear.

Standard value:

 $0 \sim 0.05 \text{ mm} (0 \sim 0.002 \text{ in})$

MOTICE

Take the measurements at two places on the pinion gear.



KISE610E

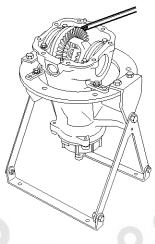
Driveshaft and axle

2) If the backlash exceeds the limit, adjust using side bearing spacers.

MOTICE

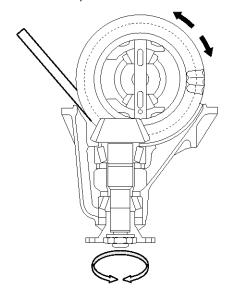
If adjustment is impossible, replace the side gear and pinion gear as a set.

- 4. Check the tooth contact of the final drive gear by the following procedure.
 - 1) Apply the same amount of machine blue slightly to both surfaces of the drive gear teeth.



KIQE610D

2) Insert a brass rod between the differential carrier and the differential case, and then rotate the companion flange by hand (once in the normal direction, and then once in the reverse direction) while applying a load to the drive gear so that some torque (approximately 25~30Nm) is applied to the drive pinion.



KISE610G

Differential Carrier Assembly

DS-43

ACAUTION

If the drive gear is rotated too much, the tooth contact pattern will become unclear and difficult to check.

3) Check the tooth contact pattern.

Tooth contact	Contact state	5	Solution
Standard contact	KISE610H		
1. Heal contact	KISE650A	Increase the thickness of the pinion height adjusting shim, and position the drive pinion closer to the center of the drive gear. Also, for backlash adjustment, reposition the drive gear further from the drive pinion.	
2. Face contact	KISE650B	شرکت دیجیتال اولین سامانه دی	KISE630A
3. Toe contact	KISE650C	Decrease the thickness of the pinion height adjusting shim, and position the drive pinion further from the center of the drive gear. Also, for backlash adjustment, reposition the drive gear	4
4. Flank contact	KISE650D	closer to the drive pinion.	KISE630B

Driveshaft and axle

MOTICE

- Tooth contact pattern is a method for judging the result of the adjustment of drive pinion height and final drive gear backlash. The adjustment of drive pinion height and final drive gear backlash should be repeated until the tooth contact patterns are similar to the standard tooth contact pattern.
- When you cannot obtain a correct pattern, the drive gear and drive pinion have exceeded their limits. Both gears should be replaced as a set.
- 5. Check the oil leaks and the lip part for chew or wear.
- 6. Check the bearings for wear or discoloration.
- 7. Check the gear carrier for cracks.
- 8. Check the drive pinion and drive gear for wear or cracks.
- 9. Check the side gears, pinion gears and pinion shaft for wear or damage.
- 10. Check the side gear spline for wear or damage.

